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had, therefore, to the second supposition which is that the birds learned this course gradually by an extension of a shorter course.

It is known that at one time the Gulf of Mexico extended north approximately to what is now the mouth of the Ohio River. It is a fair presumption that at this time migrants passed by land from Mexico through what is now Texas to their summer homes in the Mississippi Valley. This course would be but little longer than the direct course across the Gulf. As time passed and the land began to appear to the south of the mouth of the Ohio, the bird's route would turn more and more to the east in northern Texas, while at the same time it is probable that the climatic conditions in southern Texas and northwestern Mexico became less favorable to the support of a large population of forest loving birds. These two causes together probably induced the birds at first to follow close along the Texas coast to shorten the distance and obtain food; later to make short flights over the water, near to the shore, and still later to lengthen these flights, carrying the path of the flight continually to the eastward, until finally they adopted their present route across the full width of the Gulf of Mexico.

It is believed by some that many of the birds of the eastern United States reached their present breeding grounds by way of a former extension of Honduras toward Cuba, and thence across that island to the Bahamas and Florida. The argument is just the same whether it is supposed the route began in Texas and moved eastward or commenced in Cuba and moved westward. In either case the migration route now used does not indicate the way by which the species "originally immigrated into its present breeding home."

Washington, D. C.

Old Fort Tejon

BY JOSEPH GRINNELL

SCARCELY any locality in California could be named which would fail to afford at least a modicum of interest to the nature student. Yet Old Fort Tejon possesses an added attraction due to its position in the early history of California and its zoology, which cannot fail to continually draw more explorers in its direction in the future.

Fort Tejon lies in a well watered valley which leads down from Tejon Pass towards the San Joaquin Valley. This Pass is the lowest one of the southern Sierras, 4200 feet, and was the one selected by the forty-niners who entered California by the way of the Mojave Desert. The Pass itself is in the extreme north-western corner of Los Angeles county, but Fort Tejon, five miles north, is beyond the boundry, in Kern county, and about a thousand feet lower. The old immigrant trail still shows in places, but is now for the most part replaced by the well graded State road which leads up from Antelope Valley (the extreme westward arm of the Mojave Desert) over Tejon Pass, down the valley and past Castac Lake (now dry) and Fort Tejon, and on down the steep and narrow Cañada de las Uvas out into the San Joaquin Valley by the way of Rose's Station to Bakersfield.

They tell us that the military post was established at this point about 1850 in order to furnish protection to the immigrants through the mountains which were at that time infested with bands of Mexican bandits and renegade Indians. The ruins of the Fort buildings cover considerable ground, and point to the great im-

portance of the place. This importance, however, lasted but a few years, and was followed by complete abandonment. The roofs have been removed from most of the buildings with the result that a few winters' rains reduce the adobe walls to low mounds of earth, in many places scarcely distinguishable from the surrounding ground. Earthquakes have also helped in this leveling process which will at the present rate before long result in the total obliteration of this, one of California's most interesting land marks. The site is now owned privately and is part of the 25,000-acre Tejon Rancho which is devoted to cattle raising.

My assistant, Joseph Dixon, and myself arrived by wagon with our collecting outfit on the 19th of July, and were fortunate in obtaining prompt permission from the major-domo of that part of the rancho to camp right at the Fort which is a quarter of a mile off the main road. For the whole country is fenced, and hunters and campers kept out for fear of starting fires or disturbing the stock.

One of the Spanish vaqueros lives with his family in the best preserved of the adobe buildings, and I believe I never met a more hospitable gentlemen anywhere, and this was surely welcome. He helped us to locate on the best camping ground near a clear, cool spring, turned our horse into the best pasture close at hand, and gave us many a pointer as to the whereabouts of the different animals we were after. We set up our skinning-table under an immense white oak, said to be the largest in California. It was 27 feet in circumference at the base, and was only one of many others nearly as large which form a group in front of the rectangle formed by the Fort ruins. In fact the most impressive feature of the Tejon valley to one entering from the dry barren plains on either side, are the magnificent oak groves, interspersed with green pastures. What an oasis this must have looked to the early traveler who had gotten safely this far after his perilous journey across the desert. Many springs contribute to a fair-sized brook, which, lined with immense willows and lofty maples festooned with grapevines, takes its tumultuous way down the narrow gorge below the Fort to the San Joaquin Valley. The hill-sides were at the date of our visit brown with a heavy clothing of dry grass, while the northerly slopes were covered with clumps of horse-chestnut (*Æsculus*), the first to be met with towards the north.

As the reader will have already suspected, such a region fairly swarms with animal life, as compared with the usual desert or semi-desert of southern California. Insects were abundant, and insectivorous birds and mammals were correspondingly numerous. I have never anywhere seen such great numbers of bats as made their appearance at early dusk. They made their way in veritable streams out of the attics of buildings, hollows of trees, and even crevices in the adobe walls. The mellow notes of poor-wills were to be heard of evenings, while by day troops of violet-green swallows skimmed back and forth over the meadows. A few western martins had nests safely ensconced in holes of lofty oaks.

From the dense green foliage of maples and willows came the melodious songs of the Cassin and warbling vireos. Western kingbirds were plentiful, and from their perches in the more open places assailed any whose intent might be suspected. The old government rain gauge out in the middle of the long-forsaken parade ground had evidently been a favorite perch for many a year, for it was almost completely filled with excrement. Traill flycatchers were exceptionally abundant in shaded places, and several of their nests were discovered in gooseberry bushes two to five feet above the ground. Black phoebes fluttered about the crumbled walls, while a family of young wood pewees was noted daily lined up on a barbed-wire fence, getting pointers from their elders on how to catch bees without getting stung.

Among the finch family, lark sparrows were the most plentiful. Scattered flocks, often mixed with bluebirds and linnets, were continually flushed from the road-side through the dryer portions of the valley. About a tulé-bordered pond were a number of song sparrows, which I was anxious to secure, because one of the subspecies was described from here. But the sparrows refused to be enticed into the open by any variety of curiosity-arousing squeaks we could produce. Most of the specimens finally procured came incidentally by way of our small mammal traps set for voles and harvest-mice and baited with rolled oats. A grosbeak and towhee also fell victims to these indiscriminating contrivances.

Of all the birds of the neighborhood, the most insistent upon our attention were the California woodpeckers. The oaks furnish these droll birds with a generous livelihood, so they seem to have plenty of time for all sorts of nonsensical performances. Their medley of quavering nasal notes echoed among the oaks from daylight till dark. Sometimes a "carpintero," as the vaqueros call this bird, would repair to the roof which yet remains on one of the large barracks and now used to shelter the hay crop, and selecting a loose shake, would pound on it for a half hour at a time, making as much noise as a lather, and evidently enjoying it. The wood-work under the eaves and around the doors and windows, which we were told had been shipped to California around the Horn, was perforated with holes made by the woodpeckers to fit the white-oak acorns. In some places the boards were quite symmetrically inlaid with acorns, just as the old doors were studded with wrought nails.

Near the skinning-table was a baling-wire line stretched between two trees. On this the vaqueros had hung out a batch of meat in strips to dry. Most of this had been gathered in; but a few strands of beef suet still depended from the wire, and to this woodpeckers and slender-billed nuthatches made many visits each day. They would either perch on the line or cling to the strips to peck off bits of the fat of which they seemed very fond. It was seldom that two woodpeckers remained peaceably feeding together very long at a time. One or the other would be driven off after much dodging and scolding. But it was no unusual thing to see a nuthatch and a woodpecker industriously pecking away at the same piece of jerky, apparently taking little notice of each other.

From the grassy stretches high on the canyon sides could now and then be heard the wierd notes of the rufous-crowned sparrow, contrasted with the more sprightly song of the least vireo from the poison-oak clumps nearby. Outcroppings of rock on the hillsides below the Fort afforded congenial homes for the canyon and rock wrens, full-grown young of which were common. A surprise was afforded in the presence of the Sierra creeper, numbers of which were to be seen and heard in company with plain titmouses and nuthatches in a particularly dense grove of oaks below the Fort. Their faint wiry "tee, tee, te-deedle-de wee" reminded us of the conifers of a higher zone.

Ravens often flew by overhead in pairs, heads on one side, and croaking warily. One afternoon a flock of fully fifty convened on a neighboring hilltop. After an hour's parleying and restless moving about, the whole band took flight circled upwards awhile, and then started off east on a bee-line, doubtless with intent to visit either the almond orchards or grasshoppery fields of Antelope Valley. Dixon discovered a number of ravens quietly bathing in a willow-skirted pond, and succeeded in crawling within range unnoticed. As a result, the peaceful ablutions were interrupted, and a pair of these tantalizingly shy birds found their way into the collecting-chest.

As is usual on stock ranges turkey buzzards were numerous; and the vaqueros

maintained that condors, or "wietros" as they called them, are fairly common in the vicinity. We saw two condors circling above a carcass, and forthwith set out several steel traps around it, with hopes that almost amounted to certainty of securing one of the big birds within a day or two. But calves presumably walked into the traps and walked off with them before the vultures returned, if the latter did come back at all. The vaquero living at the Fort, declared that he often saw "wietros" bathe by dipping their heads into the long low watering-troughs, as the birds flew slowly past!

Mourning doves were to be seen by hundreds, but valley quail were sparsely represented in the region. A family of six Cooper hawks were dealing relentlessly with the smaller birds of the vicinity. We caught them in pursuit of grosbeaks and linnets. A righteous satisfaction gradually grew within ourselves the while we "collected" the hawks one by one from day to day. We felt as if we were atoning for the songsters we killed ourselves. The few red-tailed hawks around evidently contented themselves with ground squirrels of which there was surely a plenteous supply.

It is from a historical standpoint that Fort Tejon appeals to one with peculiar interest. During the Pacific Railway Surveys in the 50's, that greatest western field naturalist of those times, John Xantus de Vesey, was located here for a time, and he sent to the Smithsonian Institution large collections of animals. The birds were many of them recorded by Baird in 1858 in Volume IX of the Pacific Railway Reports. But in July, 1856, Xantus published in the Proceedings of the Academy of Natural Sciences of Philadelphia a complete list of 144 species of birds which he had actually obtained "in the vicinity of Fort Tejon." It is very evident from a perusal of this article, which is merely a bare list of names, that his collecting had extended through the whole year, for it includes both summer and winter visitants and transients as well as permanent residents. Unfortunately Xantus failed to record the dates of capture for most if not all of his specimens; and also species are included which were very likely not taken within many miles of the Fort and whose precise locality therefore must always be in doubt. This is also true of other animals than birds; for example the type of a lizard (*Xantusia vigilis*) is given as "Fort Tejon." This animal is abundant in the tree yucca belt of the Mojave Desert. It strikes me as extremely probable that the type specimen really came from there, not nearer than sixteen miles from Fort Tejon, and in an altogether different faunal area. Furthermore the tree yucca itself has been ascribed to Fort Tejon, but I am very sure it does not actually occur within sixteen miles; not so very far on the map, but a very long way off, faunally. Also the "pinyon and sage brush belt" does not include Fort Tejon as has been more recently averred, but begins at least four miles south and at a higher elevation, a big jump faunally. The abrupt changes in fauna and flora that take place within a very short distance from the coast slope and valleys towards the interior, are amazing, and to be comprehended must be actually seen and studied. The value of precise locality on labels, which was not recognized in early days, must now be considered of almost as much importance as the specimens themselves.

The Xantus collection of birds from "Fort Tejon" afforded the types of several new species. Xantus himself described the spotted owl, Hammond flycatcher, and Cassin vireo; and Baird described as new the spurred towhee, thick-billed sparrow, and Heermann song sparrow. Besides Xantus, Lieutenant Williamson also collected at about the same time through "Tejon Valley." In the 70's H. W. Henshaw visited the locality, and in 1891 members of the Death Valley Expedition passed through the region, making observations on birds which were published

in "North American Fauna No. 7." As is evident, probably no other one interior locality has already received so much attention from Naturalists, and yet much new and valuable data doubtless await the future explorer of this locality, still far from the influences of cultivation and the railroad.

The following is a list of the birds detected during my brief visit, July 19 to 26, 1904, within two miles up and down the valley from Fort Tejon:

<i>Lophortyx californicus vallicolus</i>	<i>Astragalinus psaltria hesperophilus</i>
<i>Zenaidura macroura</i>	<i>Astragalinus lawrencei</i>
<i>Gymnogyps californianus</i>	<i>Chondestes grammacus strigatus</i>
<i>Cathartes aura</i>	<i>Aimophila ruficeps</i>
<i>Accipiter cooperi</i>	<i>Melospiza cinerea heermanni</i>
<i>Buteo borealis calurus</i>	<i>Pipilo maculatus megalonyx</i>
<i>Falco sparverius phalaena</i>	<i>Pipilo fuscus crissalis</i>
<i>Strix pratincola</i>	<i>Zamelodia melanocephala capitalis</i>
<i>Megascops asio bendirei</i>	<i>Guiraca caerulea lazula</i>
<i>Bubo virginianus pacificus</i>	<i>Cyanospiza amœna</i>
<i>Dryobates villosus hyloscopus</i>	<i>Progne subis hesperia</i>
<i>Dryobates pubescens turati</i>	<i>Tachycineta thalassina lepida</i>
<i>Dryobates nuttalli</i>	<i>Vireo gilvus swainsoni</i>
<i>Melanerpes formicivorus bairdi</i>	<i>Vireo solitarius cassini</i>
<i>Colaptes cafer collaris</i>	<i>Vireo pusillus albatrus</i>
<i>Phalacroptilus nuttalli californicus</i>	<i>Dendroica æstiva brewsteri</i>
<i>Calypte anna</i>	<i>Toxostoma redivivum pasadenense</i>
<i>Tyrannus verticalis</i>	<i>Salpinctes obsoletus</i>
<i>Myiarchus cinerascens</i>	<i>Catherpes mexicanus punctulatus</i>
<i>Sayornis nigricans</i>	<i>Troglodytes aedon parkmani</i>
<i>Contopus richardsoni</i>	<i>Certhia americana zelotes</i>
<i>Empidonax traillii</i>	<i>Sitta carolinensis aculeata</i>
<i>Aphelocoma californica</i>	<i>Bæolophus inornatus</i>
<i>Corvus corax sinuatus</i>	<i>Chamæa fasciata</i>
<i>Icterus bullocki</i>	<i>Psaltiriparus minimus</i>
<i>Euphagus cyanocephalus</i>	<i>Poliophtila caerulea obscura</i>
<i>Carpodacus mexicanus frontalis</i>	<i>Sialia mexicana occidentalis</i>

Some Bird Notes from the Central Sierras

BY CHARLES R. KEYES

DURING the late spring and early summer of 1903 a small party, including the writer, tramped with pack animals from Sonora to Lake Tahoe, thus passing through the central heavily timbered portion of the Sierra Nevada mountains. We left Sonora on May 27, crossed the north fork of the Stanislaus river at Robinson's Ferry and thence made a leisurely trip by the old Big Trees—Carson Valley stage road along the north bank of this river, the route taking us through the Calaveras grove of sequoias, through Bear Valley and through the beautiful chain of mountain meadows called Charity, Faith, and Hope Valleys. From the latter we left the old time stage road, now frequented by few except passing sheep and cattle men, and, turning northward through Luther's Pass, soon descended into Lake Valley and finally concluded our itinerary, so far as